own ships, boats or vessels, buy and sell produce and manufactures at home and abroad on commission, receive and pay out deposits, deal in foreign and domestic exchange generally, make advances on produce, manufactures and merchandise, and to increase their capital stock, if necessary, to three millions of dollars.

For the protection of the community against abuses, the officers and directors are required to make bonds and take suitable oaths for the faithful performance of their duties; make annual reports showing who are the stockholders, the amount of each one's shares, and the true condition of the company. The bill also enables the governor to appoint commissioners to examine the entire business of the company, and report thereon publicly. If the company abuses its powers, the legislature can annul their charter.

Well organized, with competent agencies at different foreign and domestic points of trade, they would not only be highly useful to the mercantile and planting community in making their sales, purchases and exchanges, but could also, to great advantage, make purchases at home and abroad of materials or machinery for our rail-road and manufacturing companies.*

* There were some valuable tables annexed to this paper, which are omitted. The reader can obtain all the material embraced in them by reference to the pages of the Review and of the Industrial Resources.—[Ed.

ART. V.—VALLEY OF THE AMAZON.

[The increasing interest which attaches to everything that relates to the resources of several of the South American states, induces us to publish, *in extenso*, the valuable contributions of Lieut. Maury, made during last winter, and in part copied into some of our numbers. The papers are worthy of study and reflection, and will be continued in our next number. With those we have already published, they present the subject complete in almost every aspect.]

THE AMAZON COUNTRY, ITS CLIMATE AND PRODUCTIONS—THE LA PLATA THE MISSISSIPPI OF THE SOUTHERN HEMISPHERE—RIVER BASINS COMPARED—COMMERCE OF THE LA PLATA, ITS VALUE—PRODUCTIONS—CANAL BETWEEN THE WATERS OF THE LA PLATA AND THE AMAZON—THE PARAGUAY COUNTRY—CATTLE RAISING—GOLD AND DIAMONDS—AN IMMENSE DRUG PLANTATION—THE RICHES OF THE VEGETABLE EXCEED THOSE OF THE MINERAL KINGDOM—GOLD WASHING IN THE STREETS—IMMENSE YIELD OF DIAMONDS—MULE TRANSPORTATION—A COMMERCIAL ANOMALY—COMMUNICATION BETWEEN THE LA PLATA AND THE AMAZON—JAPANESE POLICY OF BRAZIL—EXPLORATION OF THE AMAZON BY OFFICERS OF THE U. S. NAVY—PILCOMAYO—"CITY OF SILVER"—MAGNIFICENT VIEW OF THE PRODUCTIONS OF TROPICAL, TEMPERATE, AND FRIGID ZONES.

The "policy of commerce," and not the "policy of conquest," is the policy of the United States.

The spirit of the age, animated by private enterprise, is every day seeking new fields for its peaceful triumphs, and commerce can accomplish throughout the world no achievements like those which will note its coming, and signalize its marches up and down the Amazon, and the other great rivers of that greatest of water-sheds, the Atlantic slopes of South America.

Men may talk about Cuba and Japan; but of all the diplomatic questions of the day, the free navigation of those majestic water-courses, and their tributaries, is to this country the most interesting and important. It surpasses them all. It is paramount.

The country that is drained by the Amazon, if reclaimed from the savage, the wild beast, and the reptile, and reduced to cultivation now, would be capable of supporting with its produce the population of the whole world.

It is a rice country. The common yield of rice is forty for one. It is reaped five months after planting, and may be planted at any time of the year. Thus the farmer may plant one bushel of rice to-day—in five months hence he will gather forty from it. Planting these forty, he may, in another five months, gather sixteen hundred bushels. —In ten months the earth yields an

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increase there of a thousand-fold and more.

Corn, too, may be planted at any time, and in three months is fit for gathering. Thus the husbandman there may gather four crops of corn a year. Its seasons are an everlasting summer, with a perpetual round of harvests.

It is the policy of commerce—and commerce is the policy of these United States—to open that river to steam, and its valley to settlement and cultivation; its earth, its air, and its waters, to the business and wants of trade and traffic.

There, upon that Atlantic slope of South America, in the valley of the La Plata, and in the valley of the Amazon, Nature in all her ways has been most bountiful.

There the vegetable kingdom displays its forces in all their most perfect grandeur, and in all their might; and there, too, the mineral kingdom is most dazzling with its wealth.

In that region of country wagon-roads are few, turnpikes unknown, and the first railway has yet to be built; and though the La Plata drains a country nearly as large and many times more fertile than is our own Mississippi valley, and though that of the Amazon is twice as great, and its tributaries many times longer, more navigable, and numerous, yet the steamboat upon those waters is a problem almost untried. In the valley of the Amazon the plow is unknown; and the American rifle and axe, the great implements of settlement and civilization, are curiosities.

For more than three hundred years the white man has been established in that Amazonian basin, and for more than three hundred years it has remained a howling wilderness. Owing to the mismanagement of its rulers, the European has made no impression—none—no, not the least—upon its forests. How long shall this continue to be so?

Has diplomacy no arts, commerce no charms, by which this policy may be broken up: by which its rivers may be opened to navigation, its forests to settlement, its pampas to cultivation?

What commerce has done for South America is as nothing in comparison with what it will do. It has fringed only the sea-coast of that continent with settlement and cultivation. The great interior has never been touched. The heart of the country is a commercial blank; nor is it to be reached except through the powers of steam, and the free use of its majestic water-courses.

It is of this country—of the importance of settling it up, of sending there the emigrant, the steamboat, the axe, and the plow, with the messengers and agencies of commerce—that I wish to speak.

Let us, therefore, first see where it is, how far off it is, and what is its actual condition, and then we will be enabled the better to judge as to the true course of policy which it would be best for the commercial nations of the earth to take with regard to it.

The semi-continent of South America is very nearly in shape to that of a right-angled triangle. Its hypotenuse rests on the Pacific; one of its legs extends from Cape Horn to Cape St. Roque. Here the right angle is formed with the other leg, which extends from Cape St. Roque, in latitude 5 deg. south, to Cabo La Vela, of the Caribbean Sea, in latitude 12 deg. north.

The longer leg is that between capes Horn and St. Roque; it is 3,500 geographical miles in length. The other leg has only 2,500; but the hypotenuse, which stands on the Andes and rests on the Pacific, is more than 4,000 miles long.

This configuration exercises a powerful influence upon the climates of South America, especially as it regards its hydrography. The great rivers of that country, the mighty Amazon and the majestic La Plata, are resultants of this configuration. In consequence of having a sea-front which rests upon the short leg in the northern hemisphere, and looking to the northeast—and in consequence of having the sea-front which rests upon the long leg in the southern hemisphere, to look southeast, the northeast and the southeast trade-winds, as they come across the Atlantic filled with moisture, go full charged into the interior, dropping it in showers as they go, until they reach the snow-capped summits of the Andes, where the last drop, which that very low temperature can wring from them, is deposited to melt and feed the sources of the Amazon and the La Plata with their tributaries.

The northeast trade-winds commence to blow about the Tropic of Cancer, and coming from the quarter they do, they blow obliquely across the Atlantic. They

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evaporate from the sea as they go; and, impinging at right angles upon the South American shore-line that extends from Cape St. Roque to Cabo La Vela, they carry into the interior the vapor that forms the clouds that give the rain which supplies with water the Magdalena, the Orinoco, and the northern tributaries of the Amazon.

The volume of water discharged by these rivers into the sea is expressive of the quantity which those northeast trade-winds take up from the sea, carry in the clouds, and precipitate upon the water-shed that is drained by these streams. They are but pipes and gutters which nature has placed under the eaves of the great water-shed that has the Andes for a ridge-pole, the Caribbean Sea and North Atlantic for a cistern.

The trade-wind region of the North Atlantic affords the water-surface where the evaporation is carried on that supplies with rains, dews, and moisture, New-Granada, Venezuela, the three Guianas, and the Atlantic slopes of the Ecuador.

On the other hand, the southeast trade-winds commence to blow about the parallel of 30 deg. or 35 deg. south. They, too, come obliquely across the Atlantic, and strike perpendicularly upon the South American coast-line which extends from Cape St. Roque towards Cape Horn. They pass into the interior with their whole load of moisture, every drop of which is wrung from them before they cross the Andes. The quantity of moisture which is taken up from the sea and rained down upon this wonderfully fruitful country, may be seen in what the La Plata and the Amazon discharge back into the ocean.

Now, there is no tropical country in the world which has to windward, and so exactly to windward of it, such an extent of ocean in the trade-wind region. Consequently there is no inter-tropical country in the world that is so finely watered as is this great Amazon country of South America.

Along the Atlantic coast of the United States, along the coast of China and the east coast of New-Holland, the land trends along with the direction of the trade-winds of those regions. These winds, with their moisture, travel along parallel with the land. They do not blow perpendicularly upon it, nor push their vapors right across it into the interior, as they do in South America. The consequence is, none of those inter-tropical countries can boast of streams and water-courses like those of South America.

The shore line of eastern Africa is arranged like that of the South American water-shed; but it has not sea enough to windward to supply the vapor to feed springs enough to make large rivers.

The southeast trade-winds, when the monsoons of the Indian ocean will permit them to blow, strike perpendicularly upon the east coast of South Africa, as they do upon that of South America. In the American case, they blow perpetually—in the African case, for not half the year. They, therefore, cannot give Africa half as much rain as South America receives.

At Cape Guardafui the right angle of the African coast line is formed, as it is at Cape St. Roque for America; but the winds which cross this line between Cape St. Roque and the isthmus have traversed the Atlantic Ocean and Caribbean Sea—hence they reach the land dripping with moisture; whereas, in Africa, the northeast trades, which cross the coast-line from Cape Guardafui to the isthmus of Suez, have sucked up vapors from the Red Sea only—therefore the quantity of moisture which these winds carry into the interior of Africa is not by any means so great as that which those of the Atlantic carry over into South America. The difference is as great as is the difference of the evaporating surface exposed to the northeast trade-winds by the Atlantic on the one hand, and by the Red Sea on the other.

The two systems of trade-winds—the northeast and the southeast—meet in the interior of South America, somewhere between the equator and the Isthmus of Darien. This place of meeting is a place of calms, and where it is, there it is rainy.

This circumstance, and other meteorological agents, divide the seasons in the northern portions of South America, especially the valley of the Orinoco, into the rainy and the dry—six months of constant rain, six months of blighting drought, is the condition here.

Not so in the valley of the Amazon. There the weather is agreeable all the year round; and though more rain falls there in some months than in others, as it does here with us, still there as here,

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it may rain, and does rain, any day in the year.

Now, I think that any one who has followed me with a map will perceive why this inter-tropical region of South America, or that part of its water-shed which, from Panama to the parallel of 30° or 35° south, slopes towards the Atlantic, has, and ought to have, the most remarkable climate in the world. We have seen that Eastern Africa, and Eastern Africa alone, resembles it in configuration of shore line; but the evaporating surface and the supplies of vapor are wanting, and therefore South Africa cannot be nearly so well supplied with rains, and consequently with rivers, as is South America.

In all the other inter-tropical regions of the world—in India, in Western Africa, New Holland, and Polynesia—the year is divided into the rainy season and the dry; during the latter of which little or no water falls, springs go dry, and cattle perish, and dead bodies pollute the air. Then, too, stalks forth in those countries the "pestilence that walketh in darkness."

In the valley of the Amazon no such condition exists. There the fall of water, though copious—the river Amazon is the rain-guage—is not compressed within a few months, nor accompanied by the terrible hurricanes and tornadoes which rage at the change of seasons in India. Here, in America, gentle and fruitful showers fall daily, and tornadoes are rare.

Because the Amazon is in a tropical country, the public is disposed to judge of its climates by comparing them with the climates of other tropical countries—as India, for example. But for the reasons stated, and because there are no monsoons or other conditions to cause the valley of the Amazon to be parched with drought at one season, and drenched with rains at another—as India is on one hand, and the Orinoco country on the other—there is no more resemblance between the climates of India and of the Amazon than there is between the climates of Rome and Boston; and any one who would infer similarity of climate from the fact that Boston and Rome are in the same latitude, would not be more out than he who infers similarity of climate between India and Amazonia because they both are tropical countries.

Now, what ought to be the condition of an inter-tropical country whose plains are watered with frequent showers, unaccompanied by a single drought, during ages of perpetual summer? Why, fertility and salubrity; for in such a climate anything and everything will grow. The rapid production and constant decay of vegetable matter that have been going on there for thousands and thousands of years, must have made the soil rich with vegetable mould.

The fact that vegetation there is in perpetual activity—that there, there is no period of vegetable repose—that as fast as one leaf falls and begins to decay, other leaves, just putting forth, absorb its gases—these conditions make the valley of the Amazon one of the most salubrious and delightful of climates.

Having shown that the climate of the La Plata and Amazon country is a climate without droughts, and that it is a moist and warm climate, I have established enough to satisfy any one that the soil there, whatever be the substratum, must have upon it a rich vegetable mould, which the decay of the most rank vegetation during many ages must have formed.

I proceed now to show the present condition with the future resources and commercial capabilities of the great South American water-sheds. I will confine my attention to the rivers Amazon and La Plata, to their tributaries, and the valleys drained by them. But first, let us give our attention to the La Plata, and compare the extent of country drained by it with the extent drained by rivers in the northern hemisphere.

The valley of the Amazon lies in both hemispheres; it is the largest river basin in the world, but it belongs exclusively neither to the North nor to the South. Excluding the Amazon, therefore, from the comparison, the Mississippi, then, it will be perceived, drains the largest river basin in the northern, and the La Plata the largest in the southern hemisphere. Both these streams run from north to south, each one embracing a great variety of productions, and traversing many diversities of climate; but one runs towards the equator, the other from it.

The area of the principal river-basins which are drained into seas that are ac-

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cessible to ocean commerce, may be thus stated:—

In *America.*—The Amazon, area (including the Orinoco,) 2,048,480 square miles.

North America.—The Mississippi, area 982,000 square miles.

South America.—The La Plata, area 886.000 square miles.

Europe.—The Danube, area 234,000 square miles.

Africa.—The Nile, area 520,000 square miles.

Asia (China).—The Yang-tse-Keang, area 547,000 square miles.

India.—The Ganges, area 432,000 square miles.

It will thus be observed that the valley of the La Plata in area is the third in the world; that it is twice as large as the valley of the Ganges, and more than three times as large as the largest river basin in Europe.

The basin of the La Plata embraces all the latitudes, and more too, that are to be found in the valleys of the Indus, the Ganges and the Irawaddy—the great river-basins of India. It consequently has all the agricultural capacities, and more, that are to be found in the climates of India. These great resources of the La Plata for the most part lie dormant. They are hidden in the bosom of the earth, or concealed in the recesses of the mountains. The waters of the La Plata flow through climates that are favorable to the growth of sugar, of tea and coffee, of rice, hemp, and tobacco, of cotton and corn, of drugs, woods, dyes, and spices, and of almost all the agricultural staples of the earth.

The Rio de la Plata lies wholly within the southern hemisphere, and it is the greatest river that does so lie; consequently it has opposite seasons with those of the northern. When the husbandman is sowing in the north, then he who tills the earth in this beautiful river-basin will be gathering his crop; and consequently the planter, and the farmer, and the merchant of the La Plata, will have control of the northern markets for six months of every year, without a competitor.

The Rio de la Plata, properly speaking, is that arm of the sea which lies between the parallels of 33° and 36° of south latitude. Its breadth is a hundred miles or more, according to the place of measurement, and it is formed by the junction of the Parana and the Uruguay. I treat of all the country drained by these rivers and their tributaries as the valley of the La Plata.

The Uruguay is a beautiful stream. It takes its rise in the Brazilian province of Santa Catarina, on the western slopes of the "Serra do Mar," or the sea range of mountains. Its course is first westwardly and then southwardly; it is about seven hundred miles long; drains a rich, fertile, and tolerably well-settled country. For part of the way it is the boundary between Brazil, with the Banda Oriental on one side, and the Argentine Confederation on the other.

The Parana is a majestic river. It is formed by the junction of the two Brazilian streams, the Rio Grande and the Paranahiba. The former takes its rise near the parallel of 20° south, not far from the sea-shore, and in the wealthy province of Minas Geraes. The valley in which the head-waters of this river are gathered into the main stream is most magnificent. It is about two hundred miles broad in the widest part, by four hundred miles long. The course of the Rio Grande through it is due west; it maintains this course for about five hundred miles, until it meets the Paranahiba coming from the northward, where its sources are interlapped, and almost mingled with those of the Amazon.

The population of the two interior provinces of Minas Geraes and Goiaz, in which these two tributaries of the Parana take their rise, and in which they lie, is for the former one million, for the latter one hundred and fifty thousand.

The Japanese-like policy which has been observed with regard to scientific explorations of the La Plata and its tributaries has kept the world in the dark as to many parts of that valley.

Dr. Francia established in Paraguay, many years ago, a government founded upon the Japanese system. Rosas attempted an imitation of this policy so long as he was in power; and Brazil has always practised it. So that geographers really know very little as to the Brazilian tributaries of the La Plata, their navigability, and the commercial resources of the countries which they drain.

According to the map "Do Imperio do Brazil," published in 1846, under the auspices of the Geographical Society, at

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Rio de Janeiro, and which is now before me, the Parana, for the first five hundred miles below the junction of the Rio Grande and the Paranahiba, runs through uninhabited parts of the provinces of Goiaz, Matto Grosso, and San Paulo. Passing these uninhabited parts, it then runs through and among the Spanish republics of that region for about twelve hundred miles to its entrance into the Plata. Along this part of its route the country is pretty well settled, and, according to Montgomery Martin,* whose authority is more recent than that of the map of the Geographical Society of Brazil, must be in a high state of cultivation. Writing last year upon this river, he says:

"During the six or eight months that the Parana, or Plate river, was recently opened to European commerce, upwards of sixteen millions dollars' worth of goods were exchanged for produce, and this without any previously organized mercantile establishments or system. Two convoys of merchant ships, one of 110, and the other of 76 vessels, came down the river with full cargoes. It is true that this extent of trade was partly attributable to the accumulation of property, owing to the previous interdiction of commerce by General Rosas, whose exclusive policy is an imitation of that of Dr. Francia, as he has himself boasted. He is therefore entirely hostile to mercantile, or indeed to any intercourse, especially with Europeans. Were Rosas to succeed, he would form a state such as Japan has been for the last two centuries."

The commerce of this river, I know, is valuable; but whether it be so very valuable at this time as the above extract from Martin would make it, I doubt.

But, suppose it were one million instead of sixteen that was brought down through this unexpected free navigation for six or eight months, what would it not be under regular steam and free navigation at the end of six or eight years, when the steamboat and commerce shall have stimulated the productions of the country up to the capacity of its industrial capital?

Leaving the Parana, and traveling still further west, we come next to the Paraguay, the most magnificent tributary in this water-shed. Following it in its windings, it is navigable to the distance of about two thousand miles from the sea. It is the Missouri of the La Plata valley.

A friend who has been residing in the capital of the Republic of Paraguay for several years, returned thence a few months ago. I shall, therefore, draw upon him for information touching this interesting river and region of country: also, Francis del Castelnau, who traveled through that country in 1848–9, is quite full.

He also will afford me many details.

According to Hopkins, Paraguay is but another paradise.* Of this country and its commercial resources, says he:

"I can speak with the greatest certainty, from my own personal knowledge. Almost divided by the Tropic of Capricorn, its surface is like a chessboard, checkered here and there with beautiful pastures and magnificent forests. Unlike all other lands with which I am acquainted, it seems destined especially for the habitation of man. Here, in the eastern portion of our own land, the first settlers found the whole country covered with woods; west of the Mississippi the other extreme exists, in the vast extent of prairie, destitute of timber. On the north of Brazil, in a similar manner, are unbroken forests; in its southern parts, and throughout the Banda-Oriental, Entre-Rios, Corrientes, and the Argentine Republic, we find continuous pampas, like our prairies, in many instances without bearing the necessary fuel even for household purposes. Not so in Paraguay, where, added to a sufficiency for building fleets of a thousand steamers, its forests teem with every description of ornamental and useful woods.

"Beginning with the head-waters of the river Paraguay, we find the productions upon the Brazilian side to be gold and precious stones, sugar, molasses, hides of extraordinary size, hair, tallow, wax, deer and tiger skins, with rice, corn, and the different manufactures of the mandioca root; in Bolivia, gold and precious stones, silver, coffee—considered by good judges to be equal to Mocha—and Peruvian bark.

* See his Geographical and Statistical Atlas.

* See Bulletin of the American Geographical and Statistical Society, vol. i. Memoir on Paraguay, by E. A. Hopkins, Esq., United States Consul in Paraguay.

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"Though undoubtedly we could draw from these two countries many other productions of tropical America, yet it is in Paraguay that we find the greatest wealth of all these valleys."

Of medicinal herbs, they yield in great profusion "rhubarb, sarsaparilla, jalap, bezonia indica, sassafras, holywood, dragons' blood, balsam of copaiva, nux vomica, liquorice, and ginger."

Here, too, are found dyestuffs of the most exquisite tints. Among these includes cochineal, two kinds of indigo, a "vegetable vermilion, saffron, golden-rod, with other plants, producing all the tints of dark red, black and green."

In the forests are found sixty varieties of wood, valuable for ship-building, or as timber, or for cabinet work. Among them are the "*Seibo* tree," which, "when green, is spongy and soft as cork, and can be cut like an apple; but, when dry, is so hard as almost to defy the action of steel; the *Palo de vivora*, or snake-tree, whose leaves are an infallible cure for the poisonous bite of serpents; *Palo de lêche*, or milk tree, may be called a vegetable cow; and the *Palo de borracho*, or drunken tree, a vegetable distillery. The içica resin is found at the roots of trees under ground, and is a natural pitch, ready prepared to pay the seams of vessels."*

Many of them are said to yield gums and drugs of the rarest virtues, and of the most exquisite perfume. Though, coming from a far country, which commerce, in her loftiest flights has not yet been able to reach, many of these productions are not yet known to pharmacy or the mechanic arts. "They comprise," says Hopkins, "some of the most delicious perfumes and incense that can be imagined. Others again are like amber, hard, brittle, and insoluble in water. Some cedars yield a gum equal to gum arabic; others a natural glue, which, when once dried, is unaffected by wet or dampness."

Here, too, in these wilds flourish side by side the India-rubber tree, the vanilla, with its sweet-scented bean, and the *Palo-santo*, from which the gum guaiacum of our commerce is gathered.

Wild, too, in those wonderful forests, grow, mature and decay, annually and in large quantities, two or three kinds of hemp, the *nux saponica*, or soap-nut, the cocoa, yerba, matté of superior quality, two kinds of cotton, with vegetable oils, and wax in vast quantities.

The pampas are grazed by immense herds of cattle and horses; and great quantities of "hides, hair, horns, bones, tallow, &c., are lost for want of transportation."

"Upon the fertile alluvial banks of so many large streams, sugar-cane, cotton, tobacco of a superior quality, rice, mandioca, Indian corn, and a thousand other productions vegetate with profusion; whilst seven varieties of the bamboo line the river banks and dot the frequent lakes with islets of touching beauty."

In short, this traveler thus sums up his account of this glorious valley:

"We have found the forests spontaneously producing everything necessary for the comfort and luxury of mankind, from the beautiful cotton-tree that affords him clothing, to the colors which suit his fancy as a dye; and from the woods that furnish his ship and house, or ornament his *escritoire*, to the herb that cures his sickness, or the incense that delights his olfactories. It is only necessary to add, that the climate is favorable to all the useful grains and table vegetables, with delicious fruits to support the frame and gratify the palate."

But from the Republic of Paraguay, where Hopkins was, to the mouth of the La Plata, there were only some 1,500 miles of river navigation. Let us, therefore, ascend higher up the beautiful Paraguay, cross over into Brazil, ascend this river through the district "Dos Diamantes" to the city of "*Diamantino*," and thence trace its sources, up over their beds of bright jewels and golden sands, to their very fountain-head, as they leap spangled and sparkling from the "*Diamond* mountains."

Standing on these, we may contemplate the great "Divide," which separates the waters—if they be separated—of the Rio de la Plata from the waters of the Amazon.

This ridge extends from east to west over the distance in a straight line of more than 2,000 statute miles. On one side the streams run south; on the other, they flow north; and on both sides they wash down from this ridge gold, diamonds, and other precious stones. This auriferous and rich mineral region embraces many degrees of latitude, and

* Hopkins.

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extends through 30° of longitude. I propose to speak more of it at another time.

It is a question whether the waters of the La Plata and the Amazon do not unite through a natural canal, as do those of the Amazon and the Orinoco through the Casiqueare, and thus afford an inland navigation from Buenos Ayres, in 35° south, to the mouth of the Orinoco, where it empties in 11° north into the Caribbean Sea. Truly such a navigation would be bringing the commercial drainage of the Atlantic slopes of South America not only at our feet, but it would be emptying their treasures into the very lap into which our own Mississippi pours its waters, its surplus produce, and its wealth.

At any rate, whether there be a natural canal there now or not, we may look forward to the time when settlement, steam and civilization, shall have taken root upon the great Amazon watershed, to see canals and channels which, if nature have not completed, art will, by which the La Plata will be turned upside down, and its mouth placed, for all the practical purposes of commerce, under the equator, where the Amazon discharges itself into the sea.

Castelnau, a French *savant*, who was sent by Louis Philippe, in 1843, to explore the interior of the country, and who went from Rio along this "divide" over to Bolivia, thence to Lima, and then across the Andes and down the Amazon to its mouth, gives much new and valuable information concerning this whole country. He was gone four or five years, and the first part of his travels has just been published.

The principal object of his expedition, he says, "was to study in all its bearings the vast basin of the Amazon, which is destined to play a grand part in the future history of America;" "for," he adds, "the utter neglect of this river-basin by the nations of Europe will one day greatly astonish the political and commercial world."

"An excursion in the northern parts of the province of Matto Grosso (says Castelnau) afforded us an opportunity of determining the position of the sources of the Paraguay, as well as of the Tapajos; and we could contemplate at the same time the arms of the two greatest rivers in the world—the La Plata and the Amazon—as they leaped from the bowels of the earth at our feet, and interlocked one with the other. Again, and as if to render more attractive to men this curious and interesting spot, Nature has placed her mines of diamonds in a region of country where their value is small in comparison with the great advantages which commerce is one day to reap from this marvelous junction of waters."

It was in this region that the intrepid old Sergeant Joao de Souza found a natural tunnel through which the Sumidouro—so called because it runs for about a quarter of a league under a mountain—carries its waters to pay tribute to the Amazon.

Setting out from Cuyabá, in 1746, he descended the river of that name to the Paraguay, which he ascended to the mouth of the Sepotuba. Following this to its sources, he then cut with a hatchet a way through the forest for three leagues, over which he transported his vessels, and embarked them upon the Sumidouro. Following this river till it disappeared under a mountain, he then disembarked, and sent his vessels through. Then going across the mountain to the place where the river comes out again, he had the good luck to find his vessels had passed through without damage.

Re-embarking, he then descended the Arinas and Amazon to Pará, where he was put in prison on account of his discoveries; for it was the policy of Portugal, and has since been that of Brazil, to be as exclusive as Japan with regard to these great basins, and the treasures they contain.

The Republic of Paraguay lies between the parallels of 22 deg. and 28 deg. south latitude. It may be said, therefore, to be *extra*-tropical.

The Brazilian province of Matto Grosso lies between the parallel of 7 deg. south and the Tropic of Capricorn. It is *inter*-tropical. Its productions, therefore, it may be supposed, are different in many respects from those of Paraguay.

This province of Matto Grosso, in its greatest length and breadth, measures 16 deg. of latitude by 16 deg. of longitude.

Passing midway through it, on a zig-zag course from east to west, is the great "divide," which separates the waters of the Amazon from the waters

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of the Rio de la Plata. From one end of this ridge to the other, from the Atlantic to the Andes, gold, diamonds, and precious stones are dug from its sides or washed from its streams.

On the northern slopes of it, the Tocantins, the Chingu, the Tapajos, and the Madeira, tributaries to the Amazon, and larger than any of the rivers of Europe, take their rise. Also the Paranahiba, which empties directly into the Atlantic, has its sources among the northern ravines of this auriferous slope.

On its southern declivities the fountain heads of the Parana and Paraguay are found sending forth bright sparkling streams, which, like threads of silver, are seen winding their way through the most luxuriant vegetation and over sands of gold and pebbles interspersed with brilliants, to unite and swell out into the mighty "River of Silver," as the La Plata is called.

Let us therefore leave the country of old Francia for that of Matto Grosso and Brazil.

The traveler leaving the republic, and ascending the Paraguay to the celebrated gold and diamond region of Matto Grosso, finds on either hand, as he goes up, a charming country, diversified with pampas and groves of great beauty and extent.

Turning up the Mendingo, which comes in from the east, and ascending the same for seventy or eighty miles, he comes to the village of Miranda.

The people in the neighborhood are industrious. They raise large herds of cattle, and great numbers of horses. They cultivate, in great abundance, the sugar-cane, Indian corn, pulse, manioc, and cotton. The climate is salubrious and delightful—many of the inhabitants reaching the age of one hundred years.

It was here that Dr. Weddell, the botanist, saw the "nicaya" with its elegant foliage, the fruit of which was described by the Indians to be of an oblong form, and to contain a natural confection of which they are very fond.

Throughout this region they have immense quantities of the beautiful violet and other ornamental woods, which are used for firewood; for, though of great value in cabinet-shops, the people here have no other way, notwithstanding their fine navigable streams, of getting these woods to the seaboard except on the backs of mules.

Returning to the Paraguay, the scene is enlivened by the immense herds that are feeding upon the now evergreen pastures of the plains. The value of these herds consists chiefly in their horns and hides.

The village of Poconé, at the mouth of the Cuyabá, is one of the most flourishing places in the interior of Brazil. Castelnau says (and until otherwise stated, he is my chief authority for what follows) that as many as 8,000 or 10,000 head of cattle are owned by single individuals in that village.

Passing Poconé on the right, and taking the left fork of the river, which retains the name of Paraguay, we reach, at the distance of about 150 miles above it, the frontier Brazilian fort of Villa Maria.

The guns that are mounted in this fort were brought up the Amazon to the Tapajos, thence by that river up the Arinas, thence by portage across the diamond regions to the head-waters of the Cuyabá into the Paraguay, and so up stream to Villa Maria.

On the west there are several fine rivers, which, rising in Bolivia and Brazil, fall into the Paraguay above the mouth of the Cuyabá. Several of these streams interlock with the head-waters of the Madeira, which is to the Amazon what the Missouri is to the Mississippi. I shall have occasion again to speak of these tributaries, of the splendid country watered by them, and of the portage between them.

Villa Maria is in the midst of the great ipecacuanha region of Matto Grosso. In 1814 Francisco Real was sent to explore the diamond region of this province. But it turned out with him as I apprehend it would turn out with the pioneers of commerce now: as rich in diamonds as are the streams and gravel beds of this province, the riches of the vegetable were found greatly to exceed those of the mineral kingdom.

This immense natural plantation includes within one field an area of 3,000 square miles. The crop is perennial, and may be gathered the year round. One expert hand may collect fifteen pounds of this root in a day, which brought in Rio $1 the pound. The work of an ordinary hand is five pounds the day, and the cost of laborers from $3 40 to $4 per month.

Castelnau estimates that from 1830 to

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1837 not less than 800,000 pounds of this drug were exported from this province to Rio. This abundant supply brought down its price. But here is the singular feature of this trade: this produce is taken from the very banks of one of the noblest rivers in the world, and transported by mules for the distance of 1,200 miles to the sea-coast, in spite of Nature's great highway.

The ipecacuanha delights in flat or sandy soil, and is found also in great abundance on the banks of the Vermilho, the Seputuba, and the Cabaçal.

Vanilla is also abundant. Its price, when Castelnau was at Villa Maria, was sixty cents the pound.

But I intended to follow this intelligent traveler up into the diamond country, and with him to visit the "divide" between the waters of the Paraguay and Tapajos.

Ascending the Cuyabá, which is the principal Brazilian tributary of the Paraguay, about 150 miles from its mouth, you come to the flourishing city of Cuyabá. the capital of the province of Matto Grosso. It has a population of about 7,000. It carries on a brisk commerce with Rio by caravans numbering from 200 to 300 mules each. This commerce consists of hides, jaguar and deer skins, gold-dust, diamonds, ipecacuanha, and the like. The freight to Rio is about $15 the 100 pounds.

Here, perhaps, among all the wonderful things that are found in these great river-basins of South America, is the most wonderful of them all—a city, the capital of a province larger than all of the "Old thirteen States" of this confederacy put together, and occupying on the banks of the La Plata very nearly the relative position which St. Louis occupies on the banks of the Mississippi, carrying on its commerce, not by steam and water, but by the mule-load, and over such a distance from the sea-coast, that the time occupied by each caravan in going and returning is from ten to twelve months.

That this state of things should, in the middle of the 19th century, be found to exist in the middle of South America, upon one of the finest of steamboat water-courses in the world, whose navigable tributaries are owned by no less than five separate and independent nations, and which the "policy of commerce" has not yet demanded to be thrown wide open to navigation and commerce, will, in after times, be regarded as more wonderful than any other reality of this wonderful region.

Nay, Brazil has, within a stone's throw of this very capital, and by easy portage, the navigable waters of her own Amazon; and yet so fearful has she been that the steamboat on those waters would reveal to the world the exceeding great riches of this province, that we have here re-enacted under our own eyes a worse than Japanese policy; for it excludes from settlement and cultivation, from commerce and civilization, the finest country in the world. The Atlantic slopes of South America form a country which is larger than the continent of Europe, in which there is an everlasting harvest of the choicest fruits of the earth. It is, therefore, capable of sustaining a population larger than that by which Europe is inhabited.

Cuyabá is in the midst of the gold region of this splendid country. The metal is found in veins, among the pebbles at the bottom of the brooks, and in fine grains in the soil. After every rain the servants and children may be seen gathering it from the washings of the streets in Cuyabá.

They get in this city a drug from the Amazon called *guarana*, of which the consumption is enormous, and to which medicinal virtues the most astonishing are ascribed.

On the head-waters of the Cuyabá is the celebrated diamond district of Brazil; and though in this day of sober realities it cannot be said that the city of Diamantino, the principal village of the district, has its streets paved with diamonds, yet these jewels are found there mixed with the earth, like gold in the "diggings" of California.

Just before Castelnau was there, a man planting a post to which to tie his mule found a diamond of nine carats. The children here wash the earth in the streets for gold, and diamonds are sometimes found in the crops of fowls.

This stone is found in the bottom of the streams; and the most celebrated for it are the Ouro, the Diamantino, and the Santa Anna, in their whole length; the Arinas, the San Franciscos, of which there are three; and on the Paraguay itself for a considerable distance down the main stream.

The Sumidouro, which is on the Ama-

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zonian side of this ridge, is said also to be exceedingly rich in diamonds.

A Spaniard, one Don Simon, with his slaves, washing on the Santa Anna, during the dry season *only*, got in four years 7,000 carats of diamonds.

Castelnau estimates the whole yield of diamonds from Brazil to the end of 1849 at near $80,000,000.

It is the mineral wealth of this watershed between the La Plata and the Amazon, operating with its gold and its diamonds upon the cupidity of her councilors, that has been the curse of Brazil.

At first the diamonds belonged to the crown, and no person was allowed to visit the diamond district unless under the strictest surveillance. Military posts were established throughout the whole region to prevent people from gathering its mineral wealth.

Suppose the United States had established military posts in California to prevent the people from going there and digging for gold, what would have been the condition of that state now in comparison to what it is? It would have been as the interior of Brazil now is.

The policy of Brazil has been not only to shut out commerce, but to shut up from observation the wonderful resources, capabilities, and capacities of the finest country in the world; and among the immense treasures which lie dormant and undeveloped there, I class the precious stones and metals as among the least of the truly valuable.

There is now in Rio the original of an order issued when Humboldt was traveling in South America, ordering that great man to be made prisoner and sent out of the country, should he once set foot on Brazilian territory.

And it has been but two or three years ago that application was made by this government to that of Brazil for permission to send a steamer up the Amazon to explore it, not for the benefit of the United States alone, but for the good of commerce, science, and the world. Permission was refused. The consequence was, two officers of the navy were ordered to cross over the Andes from Lima, and descend the Amazon as they might. One of these officers (Lieut. Herndon, U. S. N.) has just returned and is now engaged with his report; the other (Lieut. Gibbon) is still on his way down.

Thus, in consequence of this Japanese spirit that still lingers in Brazil, our officers, in pursuit of science and of knowledge for the benefit of the human family, were, by this dog-in-the-manger policy, compelled to undergo all sorts of exposure, and, living on monkeys and sea-cows, to descend that mighty river, from its sources to its mouth, on rafts, in dug-outs, and upon such floating things as they could find. The report of these two officers will no doubt open the eyes of the country to the importance of this region.

On the ridge to the north of Diamantino, Castelnau saw the waters of the La Plata and the Amazon flowing from the same farm:

"We found (says he) one of the very sources of the Amola, (a tributary of the Cuyabá,) which rises in a ravine of the plateau, and flows towards the south; it is N.N.W from the fork of it, which they say is a little more elevated. These two sources unite almost immediately in the valley to form the Amola, which crosses the road of Kebo. The farm of Estivado, where we were, is situated on one of the most interesting points which the continent presents. There, in fact, and at a few steps one from the other, arise the sources of two of the greatest rivers in the world—the Amazon and the La Plata. It may one day be very easy to establish a communication between these gigantic streams, for the master of the house, as he told us himself, had attempted, simply for the purpose of irrigating his garden, to turn the waters of one river into the bed of the other. The source of the River Estivado, the true branch of the Arinas, is found in a hollow in the plateau, whose shed is turned towards the north about 650 feet east of the house of the same name; and 275 feet west of this appears, in a little grove, the source of an affluent of the Tombador, which is known to be one of the tributaries of the Cuyabá.

"The farm of Estivado is therefore on a dividing line of the waters which flow north and those which flow south. The same phenomenon is observed in Maou; in the times of great floods there is a torrent whose waters at a certain point separate in such a manner, that, on the one hand, they flow to the Cuyabá, and, on the other, to the Tapajos.

"All this great plateau is on the dividing line of the waters. The superintendent of Estivado told us that once a canoe had been carried from Cuyabá in the Arinas by means of a portage of only

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four leagues across the Chapola, and the proprietor of Macu had proposed to establish this communication."

Diamantino carries on a direct trade with Para, by the Arinas, the Tapajos, and Amazon. The place of embarkation is ten leagues from the village, and a voyage up and down thence to Para occupies eight months. The Tapajos is said to be sickly.

The foreign merchandise that reaches Diamantino by this route is sold at an advance, on the average, of eight hundred and fifty per cent. on its price in Para, which is some fifty or one hundred per cent. on New-York prices.

Were this trade large, as at present it is not—and without steamboat navigation can never be—Pennsylvania, no doubt, would rejoice in it; for iron in Diamantino and the province of Matto Grosso generally sells at $25 the 100 lbs.—*five hundred and fifty dollars a ton!*—a price which ought surely to satisfy the iron men of any country. Salt sells at $18 the 100 lbs.: flour at $40 per barrel.

Castelnau quotes the Para and Diamantino prices of thirty-four of the principal foreign articles of trade between the two places, and the average advance in Diamantino upon these Para prices is, as I have stated, 850 per cent.

Passing from this benighted country over into Bolivia, Castlenau came to an entirely different sort of people. Industrious and thriving, the Bolivians, as they contemplate their lovely rivers, the Pilcomayo and the Madeira, sigh for the steamboat and the free navigation of the La Plata and the Amazon.

The Pilcomayo takes its rise under the south wall of their beautiful "Silver City," as Chuquisaca is called. The Vermejo, another large Bolivian tributary of the La Plata, has its sources further south. After a course of a thousand miles to the southward and eastward, these streams empty into the Paraguay; and so anxious is Bolivia for the steam navigation of these rivers, that she has, I am told, offered a bonus of $20,000 to the first steamboat that will ascend the Pilcomayo to the head of navigation.

Chuquisaca stands on a spur of a mountain which juts out from the Andes, and constitutes the "divide" between the head-waters of the Pilcomayo and the Madeira. This latter, taking its rise under the north wall of this city, and joining a tributary which comes down from the city of Chochabamba, takes a sweep of some three hundred miles to the southward and eastward; then recovering itself, and swollen by the numerous tributaries received by the way, it turns north towards the Amazon, and flows by Santa Cruz de la Sierra, (the present capital of the republic,) a magnificent sheet of water.

From the two first-named cities, by the windings of the Madeira to the ocean, the distance is upwards of two thousand miles, more than half of which is in Bolivian territory. Well may that republic, therefore, sigh for river steamers and the right of way up and down the Amazon.

The climate of Bolivia is one of the finest tropical climates in the world. Indeed, its climates and productions may be considered to include those of all the habitable portions of the globe.

Here, one seated at the foot of a mountain, and surrounded with the luscious fruits of the tropics, may, casting his eye up towards the snow-capped peak above him, take in at one view the whole range of the vegetable gamut. Beginning with the chirimoya, the pineapple, the orange, and the vanilla, as they cast their fragrance around, he passes through, as he ascends, groves of the olive and the vine, the peach and the pear, until finally, having completed the vegetable notation in the order of production through the torrid and temperate zones, he reaches the frigid, and with its cap of snow he finds the summit crowned with the mosses and the lichens of the polar regions.

About one-half of Bolivia is in the valley of the Amazon; one-fourth in the valley of the La Plata; and the rest, which is not desert or mountain, is in the valley of Lake Titicaca, that inland basin in which the Incas and civilization of Peru had their origin.

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